

## **System and Method For Estimating Clock Acceleration and Location Determination**

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### **ABSTRACT OF THE DISCLOSURE**

5           A method and a system for a location determination (a) acquire a first positioning  
signal; (b) analyze the first positioning signal to provide an estimate of a clock signal  
acceleration; (c) acquire additional positioning signals based on the estimate of the clock  
signal acceleration; and (d) perform the location determination using the first positioning  
10           signal and the additional positioning signals. The additional positioning signals may be  
acquired using a stacking technique. The first positioning signal may be acquired based on a  
signal-to-noise ratio exceeding a predetermined threshold. Clock signal acceleration may be  
estimated using a constant clock signal acceleration parametric model, which may be  
parabolic model based on a function that depends on the clock signal acceleration, a clock  
Doppler and an initial phase value. Alternatively, grids of various granularity may be  
15           searched clock signal acceleration space and a clock Doppler space in the vicinity of a clock  
Doppler value measured in the acquisition of the first positioning signal.